

CEREBRAL LOCALIZATION AND THE PSI SYNDROME

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On trying to correlate the psi syndrome with a neural substrate, it is necessary to distinguish between spontaneous, "macropsychological" and experimental, "micropsychological" incidents of the card-calling type. On comparing telepathic drawings with drawings made by brain-injured patients suffering from optical agnosia, the identical tendency to distortion and disorganization of the target materials can be discerned. It suggests that the telepathic subject is "agnostic" in relation to psi impressions, and that his central processing takes place in the right rather than the left hemisphere. The capricious nature of extrasensory perception (ESP) responses of the card-calling type points to fluctuations in the reticular and limbic midbrain system in warding off the intrusion into awareness of subliminal or irrelevant perceptions from the outside world.

Among the reasons for the slow, uphill struggle of parapsychology for recognition by the scientific community are the built-in preconceptions with which many parapsychologists have approached their subject matter. Psi phenomena, by contrast to the ordinary, run-of-the-mill sensory-motor transactions studied by the neurophysiologist, were supposed to be of a basically nonphysical, spiritual nature. They were described in such negative terms as ESP or "extra"-sensory perception; as PK, or psychokinesis—that is, as a miraculously effective motor impulse without the aid of a detectable effector organ.

Such preconceived ideas contributed their share to the scientific ostracism of the phenomena and their relegation into the sphere of the supernatural. Even today many behavioral scientists are inclined to brush aside experimental ESP or PK data as statistical artifacts, or frankly erroneous, fraudulent findings, or outright delusional claims. On the other hand, the last thing parapsychologists were prepared to do was to give serious consideration to their correlations and apparent similarities to psychiatric or neuropathological conditions.

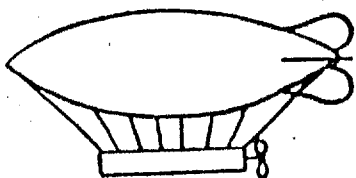
This precisely is the purpose of the present paper. I propose to review, first, a few early experiments with telepathic drawings carried out by the French parapsychologist René Warcollier (19), and by Mr. and Mrs. Upton Sinclair (16) in this country. This will be followed by a brief discussion of the problems posed by the statistical ESP experiments of the card-calling type developed by Rhine and his associates (15). But instead of pointing to the few "striking" cases obtained in such tests, I will call attention to the apparent failures or "near misses" scored by the respective telepathic percipients.

Figure 1 illustrates the telepathic drawings of one of Warcollier's experimental subjects. It shows the distortion and disorganization of the target picture, a *dirigible* which the subject failed to recognize. Instead, he sketched part of its oval shape, caught the impression of the propeller, repeated the motif twice, and placed one correctly at the lower part of the picture. Experiments with telepathic drawings carried out by Upton Sinclair and his wife (Figure 2) show the same tendency to distortion and disorganization of the target pictures. The same is true for more recent experiments with dream telepathy carried out by Ullman and Krippner and their associates (18), using verbal descriptions or drawings of telepathic target pictures made by their subjects.

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TARGET



IMPRESSION

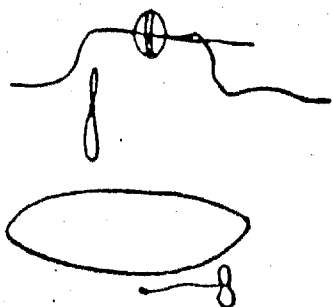


FIG. 1. Top. An airship, drawn by the agent. Bottom. Telepathic impression. Note the correct rendering of an oval shape. The propeller motif appears twice. The scribble above the oval is unexplained. (From Warcollier, R. *Mind to Mind*, 1948. Reprinted by permission.)

Critics have found fault with the imperfect match of targets and telepathic impressions in experiments of this order and are inclined altogether to reject the telepathic interpretation on these grounds. Parapsychologists, on the other hand, were quick to apologize for the poor showing of their subjects and pointed to the occasional "perfect hits" obtained to bolster their case.

I submit that these much vaunted perfect hits are in effect atypical and misleading, and that the imperfect cases or near misses are far more significant for our understanding of the psi syndrome. Figure 3 shows the drawings produced by a brain-injured patient of mine seen many years ago in the neuropsychiatric clinic of the University of Vienna (4). The patient was admitted to the hospital following a suicidal attempt with a penetrating gunshot

wound in the left parieto-occipital region. The bullet had been removed by surgery but the patient was left with marked damage to both his personality and intellectual functions. His speech was halting; at times he was at a loss to find the names of objects or persons; he showed evidence of amnesic aphasia. His handwriting was impaired, showing slight agraphia disturbances. He was unable to perform the simplest calculations; he lost his way in the hospital ward, and he was confused about spatial relations. He showed the same confusion of up and down, right and left in space. Figure 3 is a sample of his drawings which he verbally described as follows: a) a French window in the hospital ward; b) a face *en face*; c) a window latch; d) a ship; e) a tree, drawn upside down, with the root

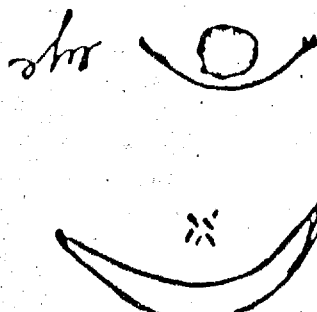
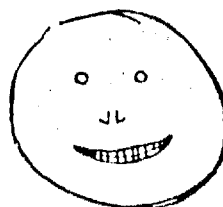


FIG. 2. Top. Face, meant to represent a jack-o'-lantern, drawn by agent. Bottom. Telepathic impression. A moon sickle with "star," resembling nose in the target drawing. Note that an eye (drawn and inscribed upside down) was added by the recipient as an afterthought. (From Sinclair, U. *Mental Radio*, p. 69, 1962.)

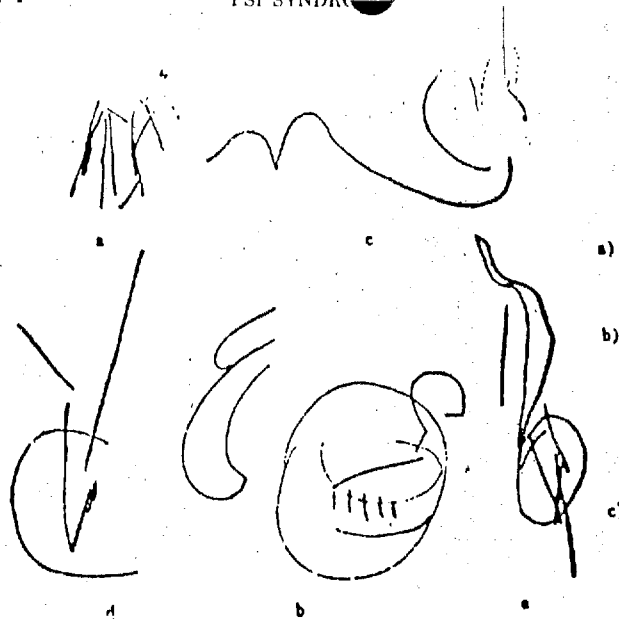


FIG. 3. Drawings of the Vienna patient. a) a French window; b) a face, *en face*; c) the window latch; d) a ship; e) a tree drawn upside down, with a) the root; b) the trunk; c) the crown. (From Ehrenwald, J. p. 525, 1931.)

at the top, the crown at the bottom and the trunk in the middle.

Here, again, the most striking feature is the utter disorganization of the material. It seems to be broken into pieces, jumbled like meat passed through a chopping machine. In short, displacement inversion and gross deviations from the horizontal and the vertical were characteristic features of his spatial orientation and motor behavior in space. My teacher, Professor Otto Poetzl (13), Poetzl and Hoff, and many others, have published a number of similar observations. They all point to lesions in the left parieto-occipital region, sometimes extending to the corpus callosum and to the right hemisphere.

More recently, Professor A. R. Luria (9) of the University of Moscow has published a series of similar observations in patients suffering from optic agnosia. Figure 4 illustrates samples of their drawings. The picture on the left represents the patient's jumbled impressions of an elephant. On the right can be seen equally disorganized impressions of a camel. It should be noted that the drawings of these brain-injured patients exhibit much the same distortion and spatiotemporal disorganization as the samples of telepathic drawings produced

by normal subjects. It is also interesting to note that such patients, in addition to the impairment of their drawing ability, also tend to confuse the meaning of a given object or picture. They can perceive its part but do not grasp it as a whole. One of Luria's patients, when shown the line drawing of spectacles, said: "There is a circle...and another...a stick...a cross-bar...Why, it must be a bicycle!" (p. 116).

Telepathic (or clairvoyant) percipients frequently have exactly the same difficulty in giving a correct verbal account of a telepathic or clairvoyant target. They are both equally handicapped in trying to organize their perceptions into meaningful wholes. Evidently, the difference between the two lies in the fact that in one case we are dealing with a patient suffering from optic agnosia; in the other, with a normal subject's difficulty in the central processing of his telepathic impressions.

Two tentative conclusions can be drawn from this state of affairs. First, it suggests that, as a general rule, the telepathic process operates without the aid of the dominant left hemisphere. Secondly, the rudimentary drawings of both telepathic subjects and patients suffering from lesions

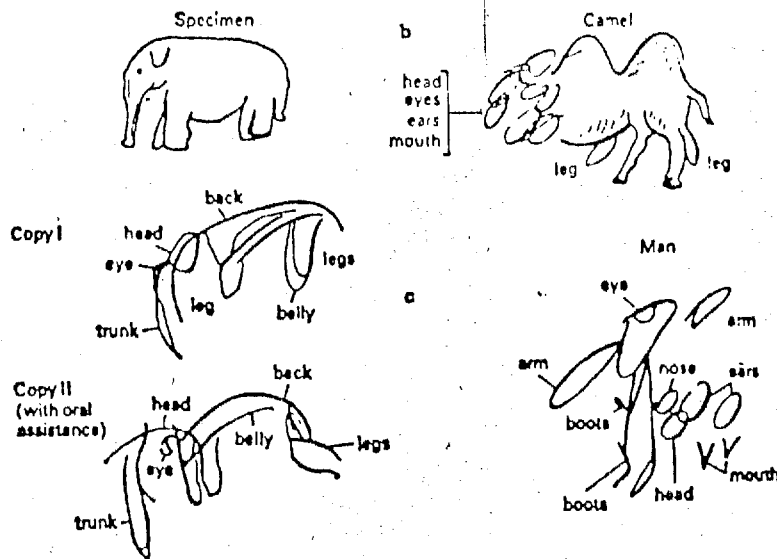


FIG. 4. Drawings of Professor Luria's patients with optic agnosia. Top left. Elephant. Bottom left. Two attempts at copying the original. Top right. Jumbled drawing of a camel. Bottom right. Figure of a man. Note disjointed bits and pieces of his anatomy. (From Drawings by patients with optic agnosia. In Luria, A. R. *The Working Brain: An Introduction to Neuropsychology*, p. 119. Translated by Basil Haigh, © Penguin Books, Ltd., 1973. Translation © Penguin Books, Ltd., 1973, Basic Books, Inc., Publishers, New York. Reprinted by permission.)

in the dominant left hemisphere reflect the groping, faltering attempts of the right hemisphere to register, to process, and to help produce correct pictorial representations of perceptual stimuli impinging from the outside world.

Such an active, conceivably compensatory, role of the "other side" of the brain has been suggested by R. W. Sperry (17), E. Bogen (2), M. S. Gazzaniga (8), R. E. Ornstein (12), and others. They suggest that the left hemisphere is the logician, the specialist in linear, analytical thinking, while the right hemisphere is the artist, the poet—the Listener with Third Ear—presiding over the intuitive, nonanalytical mode of consciousness. If this is true, we may well assign the central processing of psi impressions to the right, rather than to the left side of the brain. This would well account for the conspicuous absence of the coordinates of both space and time on the psi level of functioning. By the same token, it is no coincidence that psi phenomena duplicate in many respects the distortion of spatiotemporal relationships seen in my Vienna patient, or in Professor Poetzl's or Luria's cases of optic agnosia.

It should be recalled, furthermore, that telepathy and related phenomena are basically preconceptual and preverbal (5, 6). Telepathy operates independently of the subject's linguistic skills, localized as they are in the speech centers of the dominant hemisphere. Professor Luria has rightly pointed out that it is precisely the higher, symbolic, gnostic skills of this order which tend to be "lateralized," or relegated to the dominant side of the brain (9). If this is true, it would lend added support to the conjecture that psi phenomena are a function of central structures which have not, or not as yet, come under the sway of the dominant, culturally favored hemisphere.

Such considerations throw some light on at least one phase of the telepathic response—on the central processing of psi phenomena involving the complex target materials used in telepathic drawing tests. They may be also applicable to spontaneous incidents in everyday life, under crisis conditions, and to observations in the psychoanalytic situation (5-7). But it is readily understood that they cannot possibly account for such elementary, "micropsychological" psi events as are involved in

the statistical ESP incidents of the card-calling type.

Psi responses of this order occur in a given series in occasional bursts or as isolated "hits" in a more or less random distribution. They are, however, subject to Rhine's position or decline effect, suggesting fatigue or flagging interest on the part of the subject. They are usually unconscious and, in this respect, reminiscent of subliminal perceptions or subceptions studied by experimental psychologists.

This more elementary prototype of experimental ESP brings into focus another phase of the psi syndrome. Yet instead of revealing more about its psychodynamics, it poses a new question. It challenges us to ask not *how* such fitful, capricious psi perceptions come about, but *why* it is that we are not being flooded by such hit-and-run perceptions or subceptions *all* of the time? The philosopher Henri Bergson (1), in his theory of "attention to life" in conjunction with his filter hypothesis, has offered an intriguing, although highly speculative answer to this question. He proposed that the brain cortex serves as a screen to ward off biologically irrelevant or undesirable external stimuli from conscious awareness—among them telepathy and clairvoyance. Bergson could not foresee that the functions of the reticular formation, discovered by Magoun and his associates some 60 years later (10), were in good keeping with his thesis. We know today that the ascending and descending reticular tracts are indeed concerned with facilitating or inhibiting the flow of sensory stimuli from both inside and outside the organism to the higher centers. They are responsible for regulating arousal, vigilance, sleep, wakefulness, and its fluctuations in the rapid eye movement state.

In a similar vein, it may well be argued that it is the inhibitory function of the reticular formation which constitutes the first line of the organism's defense against the influx of such biologically indifferent or undesirable perceptual stimuli as ESP, or against the mobilization of such potentially wasteful motor impulses as PK. The concept of perceptual defenses or subceptions proposed by experimental psycholo-

gists, and Norman Dixon's (3) study of subliminal perceptions point in the same direction. According to McLean (11), a secondary, limbic-midbrain system is likewise concerned with regulatory functions of this order. Norman Dixon has suggested that the latter is particularly involved in the processing of subliminal stimuli. Professor Luria (9), Karl Pribram and his co-workers (14) have noted, furthermore, that the frontal and temporal cortex likewise play an important part in the selective filtering or "afference" of input from outside.

What, then, is the relevance of these findings to the micropsychological, ESP type of psi incidents? They suggest that the fitful, capricious occurrence of correct hits in a series of card-calling tests of the Duke type may be due to the random occurrence of minor flaws in the screening or inhibitory functions of the reticular formation and higher centers. They result in the intrusion of a few equally capricious bursts or clusters of psi incidents into a subject's scoring pattern—conscious or unconscious. If this is true, psi responses of this order are essentially flaw determined: they are due to flaws in the operation of the subject's perceptual defenses, the screening function of the Bergsonian filter or of what Freud described as the *Reizschutz* protecting the ego from being flooded by stimuli from the id. They can be contrasted with the essentially need-determined psi responses of the spontaneous type, as can be studied in the psychoanalytic situation (6, 7).

It is needless to say, however, that these conjectures about the part played by the reticular formation or the right hemisphere as the neural substrate of the psi syndrome fall far short of solving the enigma of the ultimate origin of psi phenomena. They suggest that psi—like all other aspects of our mental organization—has its neural base in a hierarchical structure of the central nervous system without having attained the stage of strict lateralization characteristic of most "higher" functions. They provide some tentative clues as to their *modus operandi*, but they cannot tell us how, in the last analysis, a telepathic impression is turned into conscious aware-

ness, or how a PK impulse is brought to bear on an external object without the aid of an effector organ.

It may be as well to recall, however, that we are likewise at a loss to explain how a certain wavelength of light is ultimately perceived as "red." Nor do we know how volition, or an ordinary motor impulse originating in my brain, is converted into action. The last step in an extrasensory impression, or the first step in a volitional act (or PK) is equally mysterious. All we know is that both take place in the little black box of my skull. The difference between the two merely lies in the fact that in one case the gap in our understanding is small and inconspicuous, while the gap looms woefully large in the case of ESP or PK. Nevertheless, psychologists and behavioral scientists in general have learned to live comfortably with the gap and to go about their business as usual in life or laboratory without trying to fill it. It should be only fair to grant the same privilege to their parapsychological confreres, without pressing them for ultimate answers which have so far eluded those engaged in more solidly established fields of scientific inquiry.

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